CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH
WALTER M. DICKIE, M.D., Director

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GUY P. JONES
EDITOR

Indian Mortality In California

A study of deaths of Indians in California during the past ten years reveals the fact that more Indians die of epidemic diseases than from any other cause. As compared with the white race, deaths from the so-called degenerative diseases occur less frequently. During the ten years 1926 to 1935, inclusive, 3302 deaths of Indians were registered in California. Of these, 685, 20 per cent were due to tuberculosis. Pneumonia claimed 364 lives, 11 per cent of the total; and epidemic diseases, excepting tuberculosis, claimed 335 Indian lives, 10.1 per cent of the total. External causes caused 332 deaths or 10 per cent of the total. Diarrhea and enteritis, under two, caused 110 deaths or 3.3 per cent of the total. Diseases of infancy caused 154 deaths or 4.7 per cent of the total.

It will be recognized that 50 per cent of all deaths among Indians in California during the past ten years was due to causes that may be regarded as preventable. Diseases of the heart and circulatory system caused only 384 deaths during the period surveyed, or 11.6 per cent of the total. This provides a contrast to deaths from diseases of the heart and circulatory system among all races in 1935 when 29.9 per cent of all deaths were due to this cause. In 1935 6.2 per cent of all deaths in California were due to tuberculosis as compared with the 20.7 per cent of Indian deaths due to this cause. Similar contrasts are noted in nephritis and diseases of the nervous system, Indian deaths being due to these causes in very limited proportions.

This statistical study would indicate that, generally speaking, the Indian population is not served with adequate public health protection. Even though such protection may be available it is doubtful that Indian population always takes advantage of the facilities that may be provided. It must be remembered, too, that a large proportion of the Indian population is located in extremely remote and inaccessible districts of the State. To be sure, the Federal Government provides extensive health facilities for Indians upon reservations. Too often, however, Indians seek relief only when illness overtakes them and the preventive service provided may not often be used. Then too a large proportion of Indian population is not located upon Federal reservations. Many Indians are independent, owning small ranches and maintaining a financial independence. The Indian population of California is recorded as about 20,000, with considerably more than half of the total living upon reservations or registered with the Federal Bureau of Indian Affairs.

CALIFORNIA INDIAN DEATHS BY CAUSE

Cause of death	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	10-year total
Totals	283	267	346	368	418	308	334	314	320	344	3,302
Typhoid and Paratyphoid fever	1	5	2	1	2	2	2	3	4	3	25
Malaria	--	--	--	3	1	--	1	--	--	--	5
Smallpox	4	1	--	2	--	--	--	--	--	--	7
Measles	--	4	--	--	6	--	2	4	2	1	19
Scarlet Fever	--	--	--	--	--	--	--	--	--	--	--
Whooping Cough	1	2	4	3	4	3	1	4	8	--	30
Diphtheria	--	2	1	1	2	--	1	--	--	1	8
Influenza	21	12	25	25	4	11	15	7	2	9	131
Dysentery	3	2	2	5	1	5	1	1	--	--	20
Acute Poliomyelitis	--	3	--	2	--	1	--	--	--	1	7
Lethargic Encephalitis	--	--	--	1	2	--	--	--	--	--	3
Meningococcus Meningitis	--	--	--	1	2	--	1	--	1	1	6
Tuberculosis, Lungs	56	44	69	65	82	53	56	42	49	63	579
Tuberculosis, Other	15	7	11	14	17	10	11	5	9	7	106
Venereal Diseases	4	6	1	3	3	6	6	11	10	9	59
Other General Diseases (Epidemic)	1	1	3	3	1	2	1	3	--	--	15
Cancer	8	11	10	13	17	13	11	14	11	14	122
Other General Diseases	4	3	9	12	10	9	6	7	4	10	74
Diseases of Nervous System	14	15	22	19	17	17	19	15	20	11	169
Diseases of Circulatory System	25	23	26	50	41	27	50	51	40	51	384
Pneumonia	28	36	45	39	55	32	30	36	33	30	364
Other Diseases, Respiratory System	3	5	4	3	5	4	3	2	2	3	34
Diarrhea and Enteritis, under 2 years	9	11	6	15	16	14	9	11	9	10	110
Diarrhea and Enteritis, 2 years and over	--	1	7	5	10	4	5	--	1	2	35
Other Diseases, Digestive System	11	13	18	15	19	9	20	16	15	8	144
Nephritis	10	6	11	9	17	10	10	10	19	26	128
Other Nonvenereal Genito-Urinary System	5	4	--	--	2	3	1	3	2	4	24
Puerperal State	3	6	4	4	7	5	10	5	4	6	54
Diseases Skin, Cellular Tissue	1	1	--	1	--	1	--	--	2	--	6
Diseases Bones, Organs of Locomotion	--	1	--	--	--	--	1	--	1	--	3
Congenital Malformations	2	--	1	3	2	3	8	1	3	3	26
Diseases Peculiar to Early Infancy	12	11	14	11	8	12	14	12	21	13	128
Senility	10	8	8	3	3	8	3	6	6	6	61
Suicide	1	2	2	5	4	3	3	4	4	3	31
Other External Causes	26	17	32	27	48	37	28	35	34	48	332
Ill-defined and Unknown	5	4	9	5	10	4	5	6	4	1	53

TREATMENT OF RATTLESNAKE BITES

Dr. Lee A. Stone, health officer of Madera County, has prepared an interesting bulletin entitled "Rattlesnake Bite, Its Treatment and Care." He has reprinted articles by Dr. Dudley Jackson of San Antonio, Texas, a recognized authority on snake bite, Col. M. L. Crimmins, U. S. A., retired, and Charles T. Vorhies, entomologist of the University of Arizona. In the introduction to the bulletin Dr. Stone states:

"In the past much has been written about the handling and treatment of Rattlesnake bite. Many authors have advocated remedial measures which have savored of quackery to such an extent that those bitten were subjected to methods of treatment that were ridiculous in the extreme. I refer to the use of permanganate of potash, kerosene, gun powder, madstone and a host of other remedies equally ineffective. Antivenin or anticrotalis serum is still being recommended as the cure-all for snake bite with the result campers and hunters rent or buy single packages of this serum to take with them believing they have an absolute specific against snake poison in their possession. Nothing could be further from the truth. Antivenin should never be administered except by a trained person who fully understands the giving of hypodermic medication and particularly serums. A single dose of antivenin may prove effective provided the person receiving it has not when bitten, had any venom injected under the skin. Then any remedy would prove effective. Because many cases have not really been bitten, but are suffering from fright is another reason why empirical remedies have gained the reputation they have of being cure-alls in snake bite cases.

"For a number of years there have been many rattlesnake 'scares' in Madera County, California. A few individuals have been bitten. It is for this reason that from time to time the Madera County Health Unit has published material on snake bite. All of the material used has been from the pens of noted authorities whose published studies have represented the highest of scientific progress. These studies, if observed by physicians will reduce the mortality among those bitten. These publications have received wide distribution and have been well received. There is very little material on snake bite to be found in medical literature that is not antiquated or of questionable scientific value.

"It should be borne in mind that many individuals die of fright rather than from poison injected by rattlesnakes or other reptiles. '*Rattlesnake venom produces violent pain in man and in animals the instant that it is injected. Any patient who does not suffer great pain, or show some swelling and discoloration, most assuredly has not been bitten by a rattler that has injected venom (poison) and any treatment will prove successful in such a case,*' says Dr. Dudley Jackson of San Antonio, Texas, one of the best known authorities on snake bite in the world."

THE PACIFIC RATTLESNAKE

(Continued from last week)

Rattlesnake venom is a yellowish, somewhat viscous liquid, which has, according to some authorities, a characteristic odor. The writer is unable to detect any odor in it and believes the reported scent to have come from the body of the snake. Venom in dried condition retains its poisonous qualities for an indefinite time. Snake venom is not a simple poison, but a mixture of toxic substances having different effects on the tissues of the victim. These toxins chemically are organic, belonging to the complex nitrogenous compounds known as proteins. Since our ordinary nitrogen-bearing foods are proteins, it need not surprise us that rattlesnake venom is harmless when taken into a normal, uninjured mouth and stomach, for digestion breaks it down. Its toxicity depends upon its injection directly into the tissues or blood-stream.

Some of the toxins are cell-destroying (cytolytic) and others are nerve-poisoning (neurotoxic), and upon the relative proportions of these substances in the venoms of different species depend their varying effects. Venom is also antibactericidal, which is to say that it destroys the protective substances contained in blood and body tissues and thus makes them more susceptible to germ infection. Therefore extra precautions against infection of the wound made by a rattlesnake should be taken in treatment.

It may be here emphasized that these reptiles have this remarkable venom not primarily for attacks on larger animals, nor even for just defense, but as a means of readily killing prey. The rattlesnake strikes its prey, in the manner described above, and then awaits the death of the victim before attempting to swallow it.

The amount of venom required to kill a victim of snake-bite is perfectly definite for each species of snake, and is directly proportional to the size of the victim. Therefore a child is in greater danger from rattlesnakes than an adult, and the minimum lethal dose for a 200 pound man would suffice to kill four children whose combined weights were 200 pounds. The mouse or other small rodent on which a rattler registers a direct hit dies in a few seconds, while the horse or cow that is accidentally bitten suffers a temporary inconvenience.

Since the quantity of venom received is of such importance, let us note some of the factors influencing the amount. Naturally, the larger the snake the greater the actual dose which may be injected. Whether the snake has recently used its venom either in defense or in killing prey determines to an extent its power to kill. When the glands are artifically emptied, as in "milking," it takes about two weeks for them to become fully recharged. The depth of clothing covering the bitten part has a direct effect also. Three or four thicknesses of ordinary cloth are just so much more effective than a single layer in reducing the amount of venom, and particularly the depth of its injection. The distance at which the strike is delivered also affects the depth of injection and probably to some extent the actual amount delivered. At very close range the rattler is more dangerous than at the near-limit of his reach, because of both force and accuracy. As the writer has observed the feeding (and striking) of many rattlesnakes in captivity, he has had frequent occasion to note surprising inaccuracy of aim, particularly at the longer ranges. A glancing blow may result either in shallow penetration, or in penetration of but one fang, which naturally means less venom injection.

Operation of one or more of the above factors results in comparatively few rattlesnake-bite victims receiving a lethal dose of venom. Such statistics as are available indicate that less than thirty-five per cent of persons bitten by rattlesnakes in the United States receive a lethal dose; that is, at least two persons of three bitten, perhaps three out of four bitten, would recover without any treatment because of insufficient venom. In these facts we have the explanation of the prevalence of belief in useless or quack remedies. Kerosene, a mud bath, whisky, application of a "madstone," or other worthless treatments will be followed by recovery if less than a lethal dose of venom was received, and thereafter the victim and his friends swear by the efficacy of the particular remedy used, not realizing that he recovered not because of the remedy, but in spite of it.

Well does the writer remember as a boy in the Mississippi Valley the excitement attendant upon the injury and safe recovery of a barefoot youth who was bitten by a "water snake" while fishing. He was given a drink of whisky and felt no ill effects (from the snake-bite). Although this water snake was a perfectly harmless, nonvenomous species, whisky was given credit for the "cure."

Upon the above principle also, apparently, was potassium permanganate for so long recommended by physicians and other scientific authorities as an antidote for snake-bite. Recently, however, careful experimentation seems to have shown rather conclusively that permanganate is not a dependable remedy. Throw away your permanganate kits, fellow members of the Sierra Club! Mine has gone into the limbo of the past. Permanganate, in a strength that might be of value in killing venom, kills tissues, and alone, without any venom present, will cause terrible destruction and sloughing of the flesh. In solution so dilute as to be harmless to tissues, it is worthless as a venom-destroying agency.

Laughter is the saving emotion of the human race, when genuine, for from its presence the cynic flees, the pessimist retreats, the misanthrope is driven to cover. Under its influence the sun shines in dark places, the birds bring again their choicest songs, the flowers lift their smiling faces, and the world becomes once more a worthwhile place in which to live.—Charles E. Whelan.

MORBIDITY

Complete Reports for Following Diseases for Week Ending June 20, 1936

Chickenpox

326 cases: Alameda 2, Berkeley 5, Oakland 16. Fresno 7, Humboldt County 2, Lake County 2, Los Angeles County 11, Alhambra 1, Culver City 8, Huntington Park 3, Long Beach 9, Los Angeles 28, Pomona 2, South Gate 5, Madera County 2, Mariposa County 2, Monterey 1, Pacific Grove 2, Orange County 5, Anaheim 8, Orange 2, Santa Ana 2, Placentia 1, Tustin 1, Riverside County 1, Sacramento 6, San Bernardino 2, San Diego County 20, Escondido 8, San Diego 8, San Francisco 25, San Joaquin County 11, Manteca 1, Stockton 5, San Luis Obispo County 3, Arroyo Grande 1, San Mateo County 1, San Bruno 1, Lompoc 2, Santa Clara County 11, Palo Alto 14, San Jose 8, Tulare County 17, Dinuba 27, Lindsay 8, Tulare 10, Ventura County 5, Santa Barbara 4.

Diphtheria

28 cases: Oakland 6, Kern County 1, Kings County 1, Los Angeles County 3, Los Angeles 8, San Fernando 1, Monterey Park 1, San Diego 2, Stockton 1, Arroyo Grande 1, Santa Barbara 2, Tulare County 1.

German Measles

222 cases: Alameda County 1, Alameda 4, Albany 11, Berkeley 30, Oakland 12, San Leandro 2, Fresno County 2,, Eureka 9, Kern County 35, Los Angeles County 2, Glendale 1, Long Beach 3, Los Angeles 2, Pasadena 5, Yosemite National Park 1, Huntington Beach 1, Santa Ana 4, Riverside County 2, Riverside 5, Ontario 1, Escondido 1, San Diego 4, San Francisco 45, San Joaquin County 7, Stockton 4, Paso Robles 1, San Mateo County 3, Siskiyou County 1, Vallejo 2, Tulare County 7, Tulare 13, Marysville 1.

Influenza

517 cases: Pleasanton 1, Kern County 19, Los Angeles 3, Fort Bragg 39, Orange County 1, Brea 1, Laguna Beach 1, Sonoma County 1, Sutter County 27, Tulare County 106, Dinuba 248, Lindsay 12, Tulare 58.

Malaria

2 cases: Kern County 1, Sacramento 1.

Measles

1223 cases: Alameda County 2, Alameda 12, Albany 1, Berkeley 18, Oakland 30, Pleasanton 1, San Leandro 9, Contra Costa County 1, Concord 2, Martinez 1, Richmond 5, Fresno County 10, Fresno 8, Humboldt County 3, Eureka 2, Kern County 170, Bakersfield 1, Lake County 1, Los Angeles County 68, Alhambra 13, Arcadia 1, Azusa 4, Beverly Hills 10, Burbank 2, Compton 15, Glendale 24, Glendora 3, Huntington Park 3, Inglewood 1, La Verne 1, Long Beach 2, Los Angeles 144, Montebello 1, Pasadena 23, Pomona 4, Redondo 3, San Fernando 5, San Marino 2, Santa Monica 1, South Pasadena 5, Whittier 2, Lynwood 3, South Gate 1, Monterey Park 3, Gardena 1, Madera County 2, Marin County 2, Mill Valley 2, San Rafael 1, Monterey County 6, King City 2, Orange County 19, Anaheim 1, Huntington Beach 1, Orange 1, Seal Beach 2, Tustin 10, Riverside County 12, Corona 1, Hemet 3, Riverside 27, Sacramento County 2, Sacramento 2, Chino 1, Ontario 14, Redlands 3, San Bernardino 2, San Diego County 11, Chula Vista 11, Coronado 3, Oceanside 8, San Diego 24, San Francisco 81, San Joaquin County 1, San Luis Obispo County 1, Arroyo Grande 1, San Luis Obispo 21, San Mateo County 8, Burlingame 1, Daly City 1, Redwood City 3, Santa Barbara County 1, Santa Maria 7, Palo Alto 1, San Jose 2, Dorris 32, Solano County 3, Benicia 2, Vallejo 4, Sonoma County 32, Sutter County 12, Red Bluff 1, Tulare County 34, Lindsay 1, Tulare 172, Ventura County 1, Fillmore 2, Oxnard 1, Marysville 2.

Mumps

576 cases: Alameda 1, Albany 10, Berkeley 4, Oakland 6, Contra Costa County 2, El Cerrito 1, El Dorado County 1, Placerville 1, Fresno County 1, Fresno 9, Eureka 6, Kern County 57, Bakersfield 3, Los Angeles County 19, Alhambra 25, Beverly Hills 14, Burbank 2, Compton 1, Glendale 4, Huntington Park 3, Long Beach 12, Los Angeles 42, Montebello 2, Pasadena 3, Pomona 7, Redondo 1, South Pasadena 1, Whittier 3, Torrance 2, Lynwood 3, South Gate 3, Monterey Park 2, Maywood 1, Sausalito 1, Napa 2, Orange County 1, Anaheim 4, Huntington Beach 1, Santa Ana 16, Seal Beach 1, Placentia 1, Riverside County 8, Corona 1, Riverside 5, Sacramento 17, Ontario 4, San Bernardino 2, Chula Vista 1, Escondido 6, San Diego 13, San Francisco 7, San Joaquin County 10, Tracy 12, Santa Barbara 12, Santa Maria 1, Palo Alto 1, Siskiyou County 7, Dorris 5, Fairfield 1, Vallejo 6, Sutter County 2, Tulare County 61, Dinuba 2, Tulare 107, Ventura County 3, Ventura 2, Woodland 1.

Pneumonia (Lobar)

84 cases: Berkeley 1, Oakland 2, Eureka 1, Los Angeles County 1, Glendale 1, Los Angeles 26, San Fernando 1, Marin County 1, Santa Ana 1, Sacramento 1, San Francisco 5, Manteca 1, Santa Barbara 1, Sonoma County 1, Tulare County 17, Dinuba 6, Lindsay 2, Tulare 14, Ventura County 1.

Scarlet Fever

239 cases: Alameda County 2, Alameda 4, Albany 1, Berkeley 1, Oakland 13, Colusa 2, Contra Costa County 1, Pittsburg 2, Fresno County 1, Fresno 5, Willows 1, Humboldt County 1, Eureka 2, Kern County 6, Bakersfield 2, Kings County 1, Los Angeles County 10, Avalon 1, Compton 1, Covina 1, El Monte 3, Glendale 2, Glendora 1, Huntington Park 2, Long Beach 3, Los Angeles 27, Pasadena 1, San Fernando 1, Santa Monica 2, Madera 2, Marin County 1, San Anselmo 1, Orange County 1, Huntington Beach 1, Santa Ana 3, Riverside County 1, Sacramento 4, Redlands 1, San Diego 5, San Francisco 53, Manteca 1, Stockton 5, San Mateo County 2, Burlingame 1, Daly City 1, Redwood City 1, San Mateo 1, Santa Barbara 4, Los Gatos 1, Palo Alto 2, San Jose 2, Dorris 2, Solano County 2, Vallejo 1, Sonoma County 6, Santa Rosa 2, Turlock 1, Sutter County 5, Tulare County 5, Dinuba 9, Lindsay 2, Ventura County 3, Ventura 2, Yola County 4, Marysville 1.

Smallpox

8 cases: Napa County 1, Tulare County 6, California 1.*

Typhoid Fever

24 cases: Berkeley 1, Oakland 1, Colusa 1, Pittsburg 2, Fresno 1, Imperial County 2, Kern County 1, Riverside County 2, Riverside 1, Sacramento County 1, San Luis Obispo County 7, San Jose 1, Shasta County 1, Tulare County 2.

Whooping Cough

378 cases: Alameda County 3, Alameda 3, Albany 6, Berkeley 19, Oakland 6, San Leandro 6, Contra Costa County 1, Fresno County 1, Fresno 5, Humboldt County 4, El Centro 1, Kern County 8, Bakersfield 1, Los Angeles County 31, Beverly Hills 1, Compton 3, Glendale 5, Huntington Park 6, Long Beach 9, Los Angeles 75, Pasadena 2, Pomona 4, Torrance 4, Bell 2, Gardena 3, King City 2, Orange County 2, Anaheim 3, Seal Beach 1, Riverside County 1, Beaumont 2, Riverside 4, Sacramento 22, San Bernardino 5, San Diego County 9, La Mesa 5, Oceanside 2, San Diego 27, San Francisco 19, San Joaquin County 1, Lodi 2, Manteca 2, Stockton 12, San Luis Obispo County 5, Daly City 2, Santa Maria 2, Santa Clara County 2, San Jose 6, Willow Glen 1, Dorris 23, Tulare County 1, Fillmore 2, Oxnard 1, Santa Paula 1, Yolo County 2.

Meningitis (Epidemic)

4 cases: Los Angeles 2, San Diego 1, Tulare County 1.

Dysentery (Amoebic)

3 cases: Los Angeles 2, San Diego 1.

Dysentery (Bacillary)

3 cases: Glendale 1, Los Angeles 2.

Leprosy

One case: San Francisco.

Ophthalmia Neonatorum

One case: Kern County.

Pellagra

2 cases: Los Angeles.

Poliomyelitis

6 cases: Kern County 1, Alhambra 1, Los Angeles 1, Sacramento 1, San Diego 1, San Mateo County 1.

Tetanus

One case: San Diego.

Trachoma

2 cases: Eldorado County 1, Pasadena 1.

Hookworm

One case: Sonoma County.

Paratyphoid Fever

One case: San Joaquin County.

Trichinosis

2 cases: Contra Costa County 1, San Francisco 1.

Food Poisoning

10 cases: Alameda County 8, Berkeley 2.

Undulant Fever

5 cases: Kern County 1, Lynwood 1, Corona 1, Santa Barbara 2.

Tularemia

One case: San Francisco.

Coccidioidal Granuloma

One case: San Luis Obispo.

Septic Sore Throat (Epidemic)

One case: San Francisco.

Rabies (Animal)

29 cases: Alameda County 1, Eldorado County 1, Los Angeles County 6, Glendale 1, Huntington Park 1, Inglewood 2, Los Angeles 10, South Gate 1, Maywood 1, Orange County 4, San Bernardino 1.

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* Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.

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